

ORIGINAL ARTICLE

Five new species of Phyllocoptinae (Acari: Eriophyoidea: Eriophyidae) from China

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Abstract Five new species of eriophyoid mites of the subfamily Phyllocoptinae from China are described and illustrated, namely *Tegolophus liquidambaricola* **sp. nov.** (Anthocoptini) infesting *Liquidambar formosana* Hance var. (Hamamelidaceae), *Abacarus paniceus* **sp. nov.** (Anthocoptini) infesting *Panicum notatum* Retz. (Poaceae), *Tetra armato* **sp. nov.** (Anthocoptini) infesting *Zanthoxylum armatum* DC. var. *armatum* (Rutaceae), *Pentaconvexus lambertianus* **sp. nov.** (Acaricalini) infesting *Rubus lambertiannus* Ser. (Rosaceae) and *Parategonotus acanthopanacinus* **sp. nov.** (Tegonotini) infesting *Acanthopanax gracilistylus* W. Smith (Araliaceae). All these new species are free-living on the undersurface of leaves and cause indistinctive damage to the host plants.

Key words Eriophyidae, Phyllocoptinae, new species, taxonomy, Guangxi.

1 Introduction

Species described in this paper are recorded from counties in central areas of Guangxi Zhuang Autonomous Region in South China. The counties where the specimens collected are karst landforms distributed widely in Guangxi, which enjoys a warm and moist climate (Liang *et al.*, 2000). Up to 2009, 87 genera and 244 species of eriophyoid mites have been reported from Guangxi (Li *et al.*, 2006; Wei *et al.*, 2009a, b).

The mites described here belong to three tribes of the subfamily Phyllocoptinae (Acari: Eriophyoidea: Eriophyidae): Anthocoptini, Acaricalini and Tegonotini. So far, 201 species belonging to 22 genera of the Anthocoptini are reported occurring in China (Huang, 2004; Xue & Hong, 2005; Xue, Song & Hong, 2005, 2008, 2010), 26 species of 10 genera in Acaricalini (Huang, 2001a; Kuang, Xu & Zeng, 2002; Huang & Wang, 2003; Qin, Wang & Wei, 2008), and 28 species of 12 genera in Tegonotini (Huang, 2004; Wei, Li & Chen, 2004; Wei, Li & Wang, 2007; Xue, Song & Hong, 2007; Wei, Wang & Qin, 2009; Wang, Wei & Yang, 2009). In 2011, field surveys were conducted by authors in Karst area in Xincheng County, Jinxiu Yao Autonomous County. Five new species of Phyllocoptinae were found and reported here.

2 Materials and methods

Specimens were collected using a hand-held magnifying glass on plant material in the field, preserved in a sucrose-ethanol solution (75%). The mites were cleared in Nesbitt's solution and mounted in Heinze medium on glass slides

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at room temperature following Kuang (1986). Each sample was examined under an Olympus CX 41 (Japan) microscope at 4–100× magnification, and then digitally photographed by using ×10 eyepieces and ×100 oil magnification.

Identification to genera was made with the help of the key to the world genera of the Eriophyoidea (Amrine *et al.*, 2003). Identification to species was made by comparing of slide-mounted specimens.

All measurements are given in micrometers (μm), generally are the length. Setal notation follows Lindquist (1996). Holotype female and a paratype male measurement precede the range of the other paratype measurements in parentheses. Body length was measured from the anterior edge of the prodorsal shield to the posterior margin of the anal lobes. Other measurements were taken with phase contrast microscope. Semi-schematic drawings were made (Figs 1–28), according to the protocols provided by de Lillo *et al.* (2010). The number of measured specimens is given in parentheses. Specimens of host plants were identified by Prof. Hua Li, from College of Agriculture, Guangxi University. Type specimens of the new species are deposited in the Department of Plant Protection, Guangxi University, Nanning.

3 Taxonomy

Subfamily: Phyllocoptinae Nalepa, 1892

Diagnosis. Phyllocoptinae was established by Nalepa (1892) and is characterized by following characters: body fusiform; gnathosoma relatively smaller than in other families compared with the body, projecting obliquely downwards; prodorsal shield with frontal lobe; scapular setae present or absent; division of legs normal; opisthosoma with broad dorsal annuli and narrow ventral annuli.

Five tribes are included in the Phyllocoptinae: Acaricalini Amrine & Stasny, 1994, Calacarini Amrine & Stasny, 1994, Tegenotini Bagdasarian, 1978, Phyllocoptini Nalepa, 1892, Anthocoptini Amrine & Stasny, 1994. The mites described here belong to three tribes: Anthocoptini, Acaricalini and Tegenotini.

Anthocoptini Amrine & Stasny, 1994. Dorsal annuli lacking lateral extensions; prodorsal shield with scapular setae on or near margin; setae usually directed divergently posteriad; scapular setae with tubercles either cylindrical or rounded, or with basal axes transverse.

Acaricalini Amrine & Stasny, 1994. With divided empodium.

Tegenotini Bagdasarian, 1978. Prodorsal shield with prominent scapular setae; dorsal annuli with laterally extended lobes or pointed projections from all or some of the annuli, or from a lateral anterior opisthosomal expansion.

Tegolophus liquidambaricola sp. nov. (Figs 1–6)

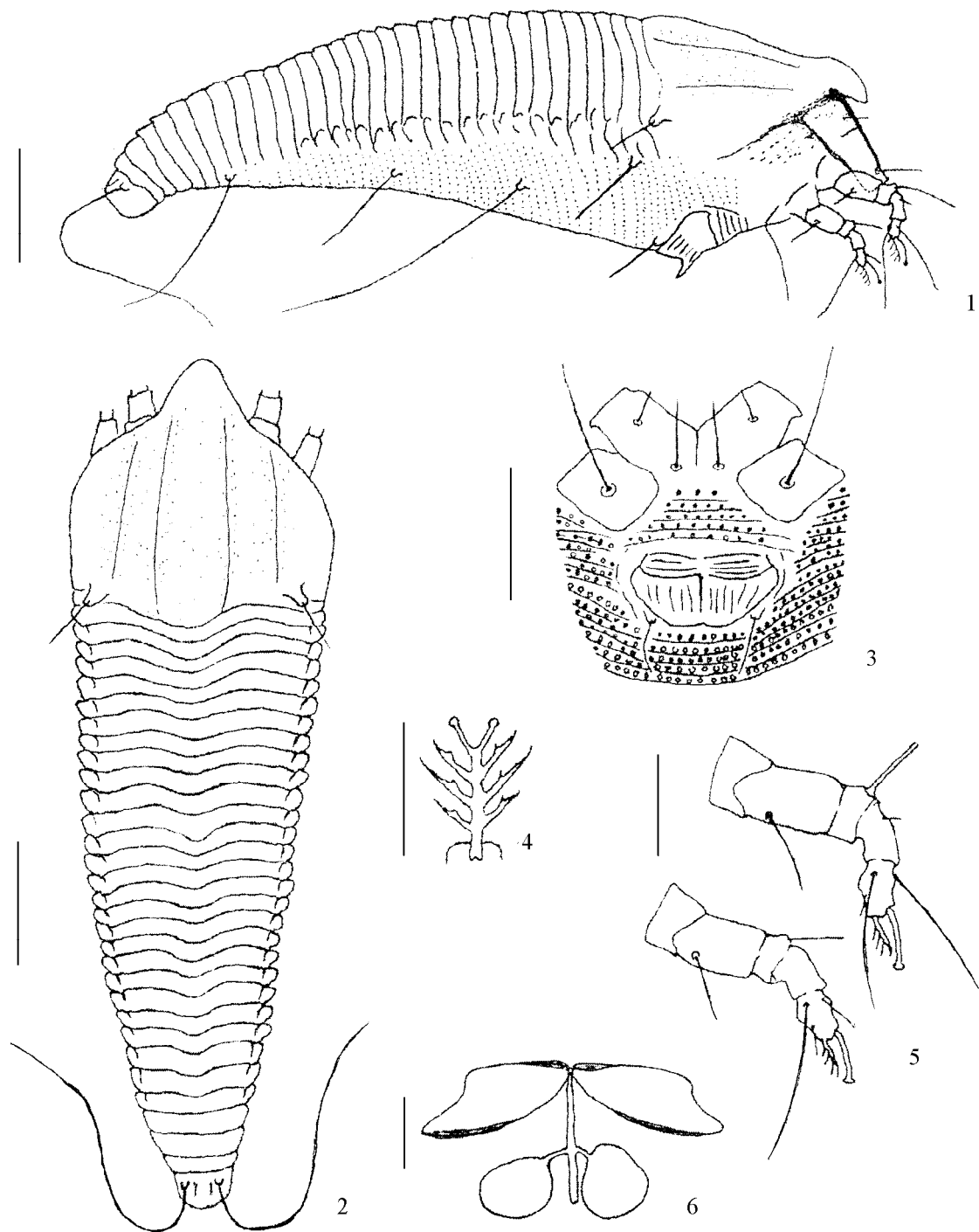
Description. Female ($n=13$). Body fusiform, whitish, 138 (132–163), 50 (42–50) wide.

Gnathosoma. Curved obliquely downward, 18 (17–19); dorsal pedipalp genual setae (d) 6 (6–7), pedipalp coxal setae (ep) 3 (3–4), cheliceral stylets 16 (15–16).

Prodorsal shield. 46 (45–46), 43 (38–45) wide, frontal lobe 8 (7–9), shield design median line absent, and with faint admedian lines and submedian lines, admedian lines complete, convex in middle, and submedian lines from base to basal 3/5, runs almost parallel to lateral shield margin. Scapular tubercles near rear shield margin, 37 (32–40) apart, scapular setae (sc) 7 (6–8), directed backward and divergently.

Coxae. Prosternal apodeme present, coxal area smooth; anterolateral setae on coxisternum I (lb) 4 (3–4), 10 (9–10) apart; proximal setae on coxisternum I (la) 9 (8–9), 7 (6–7) apart; proximal setae on coxisternum II ($2a$) 25 (25–31), 18 (16–18) apart. Coxi-genital annuli 5–6.

Legs. Segments normal. Leg I 24 (21–25), femur 9 (8–9), basiventral femoral setae (bv) 8 (6–8); genu 3 (3–4), antaxial genual setae (l'') 18 (15–20); tibia 5 (4–5), paraxial tibial setae (l') located 1/3 at base, 2 (2–3); tarsus 5 (4–5), paraxial fastigial tarsal setae (ft') 14 (13–16), antaxial fastigial tarsal seta (ft'') 17 (15–19), paraxial unguinal tarsal setae (u') 3 (3–4); tarsal empodium 5 (4–5), 4-rayed, tarsal solenidion 6 (6–7), knobbed. Leg II 23 (22–26), femur 8 (8–9), basiventral femoral setae (bv) 7 (6–7); genu 3 (3–4), antaxial genual setae (l'') 6 (4–6); tibia 5 (4–5); tarsus 5 (5–6), paraxial fastigial tarsal setae (ft') 6 (5–6), antaxial fastigial tarsal setae (ft'') 15 (14–18), paraxial unguinal tarsal setae (u') 4 (3–4); tarsal empodium 5 (4–5), 4-rayed, tarsal solenidion 6 (5–6), knobbed.



Figs 1–6. *Tegolophus liquidambaricola* **sp. nov.** 1. Lateral view of female. 2. Dorsal aspect of female. 3. Coxal-genital area of female. 4. Empodium. 5. Legs I–II. 6. Internal female genitalia. Scale bars: 1–3=20 μ m; 4, 6=5 μ m; 5=10 μ m.

Opisthosoma. Dorsum with a median ridge and two lateral ridges, median ridge not ending before submedian ridges, dorsal annuli 31 (31–33), smooth; ventral annuli 65 (64–68), with rounded microtubercles; setae *c2* 11 (10–13), on ventral annulus 14th; setae *d* 35 (28–45), 25 (25–28) apart, on ventral annulus 26th; setae *e* 12 (11–14), 13 (11–13) apart, on ventral annulus 42th; setae *f* 23 (21–25), 12 (10–12) apart, on 6th ventral annulus from rear; setae *h1* 3 (3–4), setae *h2* 53 (45–66).

Female genitalia. Coverflap with 12–14 longitudinal ridges, 15 (13–15), 22 (20–22) wide, setae *3a* 9 (8–10), 14 (13–14) apart.

Male. Unknown.

Material examined. Holotype female, Xincheng County (24°0'N, 108°36'E), Guangxi Zhuang Autonomous Region, China, 21 May 2011, from *Liquidambar formosana* Hance var. (Hamamelidaceae), coll. Shan-Sheng Ou and Sui-Gai Wei. Paratypes 12 females, mounted on individual slide, same data as holotype.

Biology. The mites are free-living on the undersurface of leaves, no conspicuous damage was observed.

Etymology. This species is named after the generic name of the type host plant.

Remarks. This new species is similar to *T. celtus* Huang, 2001, but can be diagnosed by: admedian lines complete and submedian lines from base to basal 3/5, scapular tubercles near rear shield margin, accessory setae *h1* present, female genital coverflap with 12–14 longitudinal ridges, empodium 4-rayed. In *T. celtus*, the admedian lines from base to basal 3/4, scapular tubercles on rear shield margin, submedian lines and accessory setae (*h1*) absent, empodium 5-rayed, the female genital coverflap smooth (Huang, 2001b).

***Abacarus paniceus* sp. nov.** (Figs 7–12)

Description. Female (*n*=15). Body fusiform, whitish, 148 (119–157), 42 (40–47) wide.

Gnathosoma. Curved obliquely downward, 17 (16–18); dorsal pedipalp genual setae (*d*) 6 (5–7), pedipalp coxal setae (*ep*) 4 (3–5), cheliceral stylets 15 (14–20).

Prodorsal shield. 40 (37–43), 40 (34–40) wide, frontal lobe 8 (8–10), median line discontinuous, and submedian lines incomplete, admedian lines complete; sides of shield with scorings; scapular tubercles near rear shield margin, 30 (28–32) apart, scapular setae (*sc*) 15 (15–16), directed backward and divergently.

Coxae. Prosternal apodeme present, coxal area with short lines; anterolateral setae on coxisternum I (*lb*) 4 (3–6), 7 (6–7) apart; proximal setae on coxisternum I (*la*) 15 (10–16), 5 (4–6) apart; proximal setae on coxisternum II (*2a*) 18 (17–18), 18 (16–18) apart. Coxi-genital annuli 4–5.

Legs. Segments normal. Leg I 29 (26–31), femur 9 (8–9), basiventral femoral setae (*bv*) 8 (7–11); genu 5 (4–5), antaxial genual setae (*l''*) 28 (25–30); tibia 6 (6–7), paraxial tibial setae (*l'*) located at center, 6 (6–7); tarsus 7 (6–8), paraxial fastigial tarsal setae (*ft'*) 20 (19–23), antaxial fastigial tarsal setae (*ft''*) 21 (18–25), paraxial unguinal tarsal setae (*u'*) 4 (3–4); tarsal empodium 10 (9–10), 8-rayed, tarsal solenidion 9 (8–9), tapered. Leg II 24 (24–28), femur 8 (8–9), basiventral femoral setae (*bv*) 7 (7–10); genu 4 (4–5), antaxial genual setae (*l''*) 13 (7–13); tibia 5 (5–6); tarsus 5 (5–6), paraxial fastigial tarsal setae (*ft'*) 8 (5–8), antaxial fastigial tarsal setae (*ft''*) 25 (22–25), paraxial unguinal tarsal setae (*u'*) 4 (3–4); tarsal empodium 9 (9–10), 8-rayed, tarsal solenidion 10 (9–10), tapered.

Opisthosoma. Dorsum with a median ridge and lateral ridges, median ridge shorter than submedian ridges, dorsal annuli 41 (40–43), dorsal aspect smooth, dorsal annuli at lateral parts with rounded microtubercles; ventral annuli 63 (61–64), with rounded microtubercles; setae *c2* 40 (35–45), on ventral annulus 12th; setae *d* 53 (45–60), 28 (25–31) apart, on ventral annulus 28th; setae *e* 12 (11–14), 12 (10–15) apart, on ventral annulus 41th; setae *f* 25 (20–35), 15 (15–16) apart, on 6th ventral annulus from rear; setae *h1* absent, setae *h2* 52 (45–65).

Female genitalia. Coverflap with 12–14 longitudinal ridges, 15 (13–15), 22 (20–22) wide, setae *3a* 10 (9–10), 15 (13–16) apart.

Male (*n*=1). Body fusiform, 107, 30 wide, male genitalia 12 wide, setae (*3a*) 9, 6 apart.

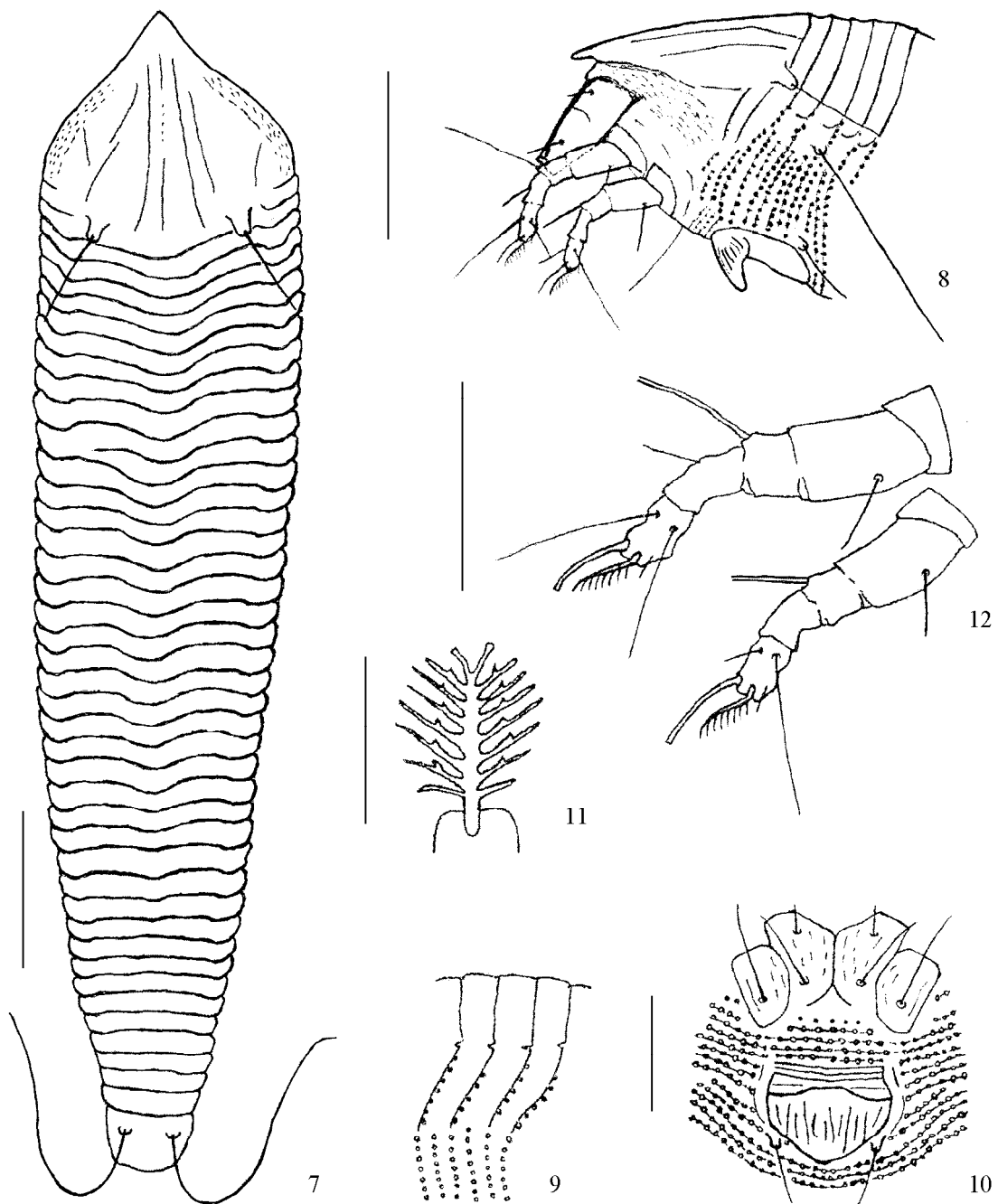
Material examined. Holotype female, Xincheng County (24°0'N, 108°36'E), Guangxi Zhuang Autonomous Region, China, 20 May 2011, from *Panicum notatum* Retz. (Poaceae), coll. Shan-Sheng Ou and Sui-Gai Wei. Paratypes 14 females and 1 male, mounted on individual slide, same data as holotype.

Biology. The mites are free-living on the undersurface of leaves, no conspicuous damage was observed.

Etymology. This species is named after the generic name of the type host plant.

Remarks. This new species is similar to *A. arunis* Chen, Wei & Qin, 2004, but can be diagnosed by: opisthosoma dorsal aspect smooth, dorsal annuli at lateral parts with rounded microtubercles; ventral annuli with rounded microtubercles; tarsal

empodium 8-rayed. In *A. arunis*, the opisthosoma with a little fan-shaped design on the dorsal median ridge of 1–22 annuli, each dorsal annulus with 3–4 short lines on lateral ridges; tarsal empodium 7-rayed (Chen, Wei & Qin, 2004).



Figs 7–12. *Abacarus paniceus* sp. nov. 7. Dorsal aspect of female. 8. Anterior lateral view of female. 9. Lateral view of annuli (enlarged). 10. Coxigenital area of female. 11. Empodium. 12. Legs I–II. Scale bars: 7–8, 10, 12=20 μm; 11=10 μm.

***Tetra armato* sp. nov.** (Figs 13–17)

Description. Female ($n=10$). Body fusiform, yellowish, 145 (118–194), 58 (39–63) wide.

Gnathosoma. Curved obliquely downward, 23 (20–24); dorsal pedipalp genual setae (d) 7 (6–11), pedipalp coxal setae (ep) 3 (3–4), cheliceral stylets 19 (19–25).

Prodorsal shield. 43 (40–46), 40 (38–46) wide, frontal lobe 10 (9–11), shield design with median line from base to basal 1/3, admedian lines complete, median line and admedian lines connected by two transverse lines at basal 1/3 and 1/6, and submedian lines connected to admedian lines in distal 1/3 of shield, submedian lines connected at base. Scapular tubercles near rear margin, 38 (30–38) apart, scapular setae (sc) 9 (9–10), directed backward and divergently.

Coxae. Prosternal apodeme present, coxal area smooth; anterolateral setae on coxisternum I ($1b$) 5 (3–8), 12 (11–12) apart; proximal setae on coxisternum I ($1a$) 14 (8–15), 8 (7–8) apart; proximal setae on coxisternum II ($2a$) 28 (15–33), 22 (21–24) apart. Coxi-genital annuli 4–6.

Legs. Segments normal. Leg I 30 (29–33), femur 8 (8–9), basiventral femoral setae (bv) 8 (6–10); genu 5 (5–6), antaxial genual setae (l'') 18 (15–20); tibia 8 (8–9), paraxial tibial setae (l') located at center, 3 (2–3); tarsus 6 (5–6), paraxial fastigial tarsal setae (ft') 10 (10–13), antaxial fastigial tarsal setae (ft'') 20 (15–23), paraxial unguinal tarsal setae (u') 3 (2–3); tarsal empodium 4 (4–5), 4-rayed, tarsal solenidion 5 (5–6), knobbed. Leg II 27 (27–32), femur 8 (8–9), basiventral femoral seta (bv) 7 (6–7); genu 4 (4–5), antaxial genual setae (l'') 6 (6–8); tibia 7 (7–8); tarsus 5 (5–6), paraxial fastigial tarsal setae (ft') 5 (5–8), antaxial fastigial tarsal setae (ft'') 18 (15–20), paraxial unguinal tarsal setae (u') 3 (2–3); tarsal empodium 4 (4–5), 4-rayed, tarsal solenidion 5 (5–6), knobbed.

Opisthosoma. Dorsum with a wide middorsal longitudinal furrow and two lateral ridges; dorsal annuli 32 (31–33), smooth; ventral annuli 63 (61–65), with rounded microtubercles; setae $c2$ 18 (15–20), on ventral annulus 13th; setae d 38 (28–55), 30 (30–32) apart, on ventral annulus 31th; setae e 16 (15–18), 18 (18–19) apart, on ventral annulus 48th; setae f 20 (19–25), 23 (23–24) apart, on 6th ventral annulus from rear; setae $h1$ 3 (3–4), setae $h2$ 51 (45–58).

Female genitalia. Coverflap with 12–14 longitudinal ridges, 15 (12–16), 20 (18–23) wide, setae ($3a$) 10 (10–13), 13 (12–13) apart.

Male. Unknown.

Material examined. Holotype female, Xincheng County (24°0'N, 108°36'E), Guangxi Zhuang Autonomous Region, China, 20 May 2011, from *Zanthoxylum armatum* DC. var. *armatum* (Rutaceae), coll. Shan-Sheng Ou and Sui-Gai Wei. Paratypes 9 females, mounted on individual slide, same data as holotype.

Biology. The mites are free-living on the undersurface of leaves, no conspicuous damage was observed.

Etymology. This species is named after the specific name of the type host plant.

Remarks. This new species is similar to *T. lucidi* Xue, Song & Hong, 2006, but can be diagnosed by: admedian lines complete, median line and admedian lines connected by two transverse lines at basal 1/3 and 1/6, female coverflap without transverse lines at base. In *T. lucidi*, the prodorsal shield median line separate from admedian lines, female coverflap with two transverse lines at base (Xue, Song & Hong, 2006).

***Pentaconvexus lambertianus* sp. nov.** (Figs 18–22)

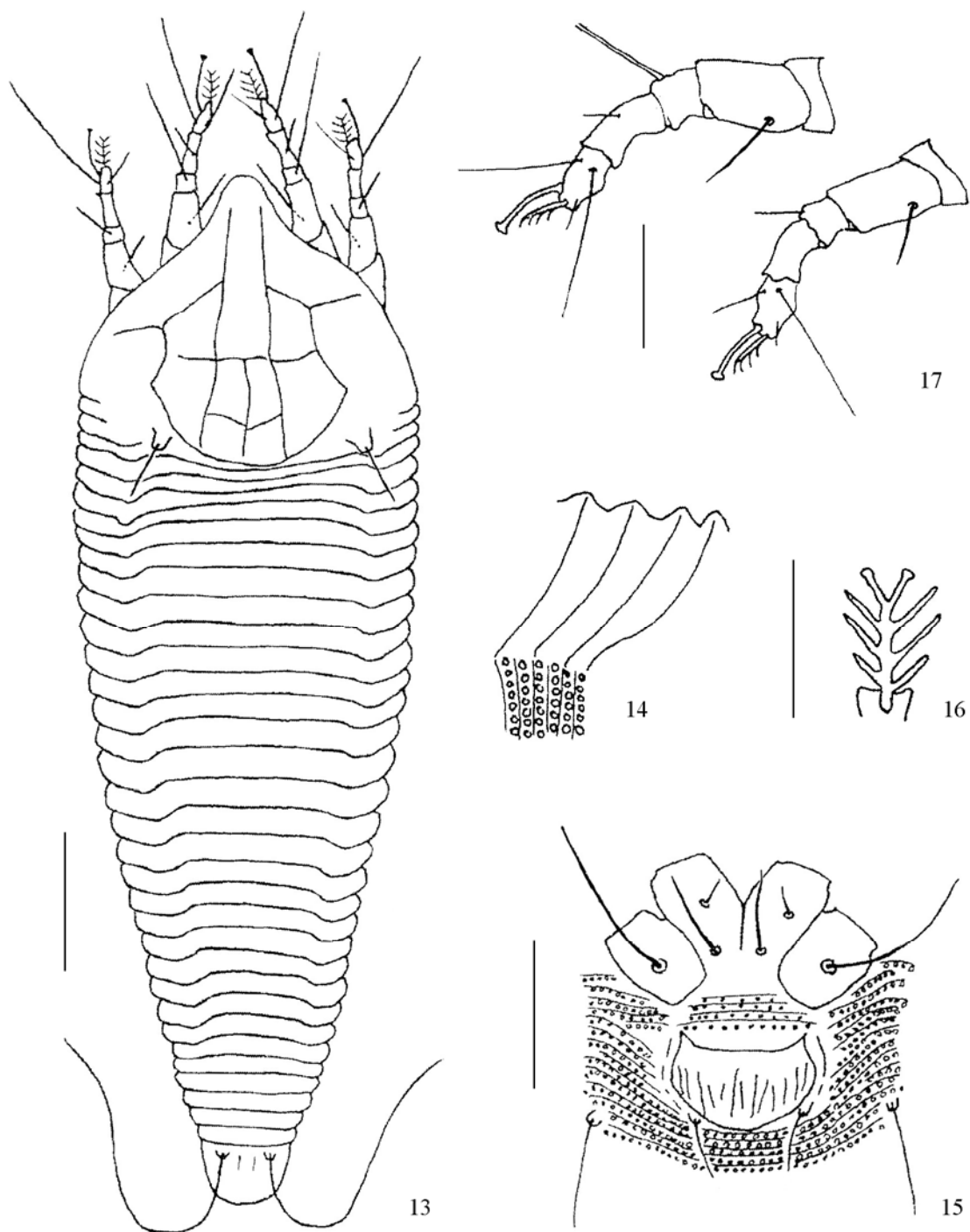
Description. Female ($n=8$). Body fusiform, whitish, 148 (131–174), 57 (55–69) wide, 55 (50–58) thick.

Gnathosoma. Curved obliquely downward, 25 (24–25); dorsal pedipalp genual setae (d) 13 (10–13), pedipalp coxal setae (ep) 6 (6–8), cheliceral stylets 19 (15–21).

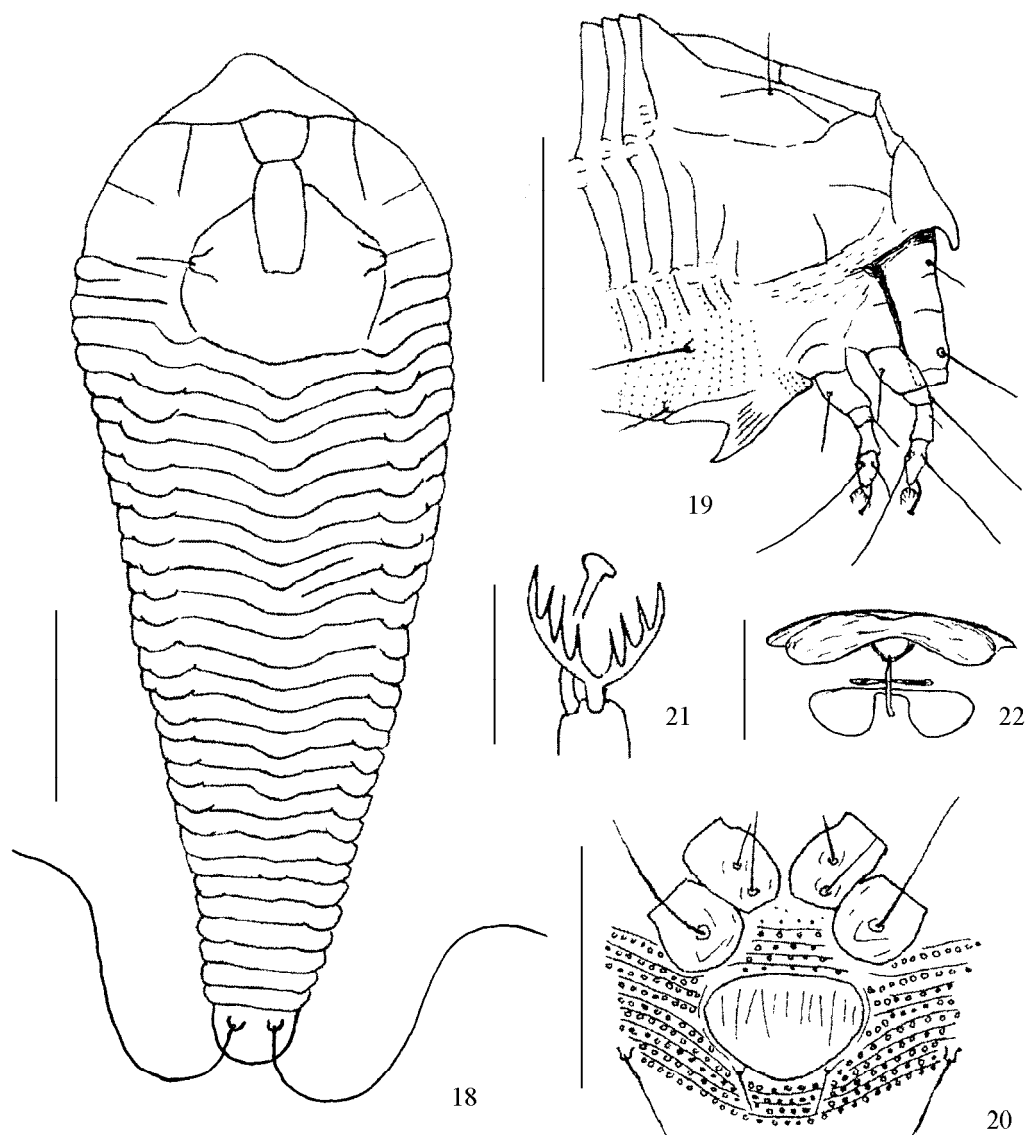
Prodorsal shield. 48 (43–50), 48 (46–53) wide, frontal lobe 9 (8–11), shield design without median line, convex in rectangular and between scapular tubercles, admedian lines connected by two transverse lines in distal 1/4, and 1/2 of shield, and forming trapezoid and rectangular, then admedian lines forked from 1/2 of shield to base, submedian lines incomplete. Scapular tubercles set ahead of rear shield margin, 21 (20–25) apart, scapular setae (sc) 7 (6–8), directed upwards.

Coxae. Coxae I separated, coxal area with short lines; anterolateral setae on coxisternum I ($1b$) 6 (5–6), 10 (10–13) apart; proximal setae on coxisternum I ($1a$) 10 (9–12), 9 (9–12) apart; proximal setae on coxisternum II ($2a$) 21 (20–25), 20 (19–26) apart. Coxi-genital annuli 4–5.

Legs. Segments normal. Leg I 31 (28–33), femur 11 (10–11), basiventral femoral setae (bv) 8 (8–9); genu 4 (4–5), antaxial genual setae (l'') 25 (22–27); tibia 8 (7–8), paraxial tibial setae (l') located 1/3 from dorsal base, 4 (3–5); tarsus 5 (4–6), paraxial fastigial tarsal setae (ft') 17 (15–18), antaxial fastigial tarsal setae (ft'') 18 (17–25), paraxial unguinal tarsal setae (u') 4 (3–4); tarsal empodium divided, each empodial branch four-rayed, 4 (4–5), tarsal solenidion 5 (5–6), knobbed.



Figs 13–17. *Tetra armato* sp. nov. 13. Dorsal aspect of female. 14. Lateral view of annuli (enlarged). 15. Coxigenital area of female. 16. Empodium. 17. Legs I–II. Scale bars: 13, 15=20 μm; 16–17=10 μm.



Figs 18–22. *Pentaconvexus lambertianus* **sp. nov.** 18. Dorsal aspect of female. 19. Anterior lateral view of female. 20. Coxal-genital area of female. 21. Empodium. 22. Internal female genitalia. Scale bars: 18–20=30 µm; 21=5 µm; 22=10 µm.

Leg II 27 (24–29), femur 9 (9–10), basiventral femoral setae (*bv*) 8 (7–9); genu 4 (3–4), antaxial genual setae (*l''*) 6 (6–7); tibia 7 (5–7); tarsus 4 (4–5), paraxial fastigial tarsal setae (*ft'*) 6 (6–7), antaxial fastigial tarsal setae (*ft''*) 15 (15–17), paraxial unguinal tarsal setae (*u'*) 3 (3–4); tarsal empodium divided, each empodial branch 4-rayed, 4 (3–4), tarsal solenidion 5 (5–6), knobbed.

Opisthosoma. Dorsum with a median ridge and lateral ridges, dorsal annuli 32 (31–33), smooth; ventral annuli 63 (61–64), with rounded microtubercles; setae *c2* 10 (7–14), on ventral annulus 9th; setae *d* 26 (26–28), 36 (36–38) apart, on ventral annulus 22th; setae *e* 12 (10–14), 13 (13–16) apart, on ventral annulus 44th; setae *f* 24 (20–28), 13 (13–14) apart, on 6th ventral annulus from rear; setae *h1* absent, setae *h2* 32 (31–35).

Female genitalia. Coverflap with 10–12 longitudinal ridges, 16 (15–16), 22 (20–23) wide, setae (*3a*) 6 (5–6), 13 (12–13) apart.

Male (*n*=2). Body fusiform, 120–128, 50–54 wide. Male genitalia 15–16 wide, setae (*3a*) 6–7, 12–15 apart.

Material examined. Holotype female, Xincheng County (24°0'N, 108°36'E), Guangxi Zhuang Autonomous Region, China, 21 May 2011, from *Rubus lambertiannus* Ser. (Rosaceae), coll. Shan-Sheng Ou and Sui-Gai Wei. Paratypes 7 females and 2 males, mounted on individual slide, same data as holotype.

Biology. The mites are free-living on the undersurface of leaves, no conspicuous damage was observed.

Etymology. This species is named after the specific name of the type host plant.

Remarks. This new species is similar to *P. taiwannensis*, Huang, 2001, but can be diagnosed by: shield design without median line, admedian lines forming trapezoid and rectangular; dorsal annuli ridges smooth; submedian lines incomplete; coxae I separated, coxal area with short lines; empodium divided, 4-rayed. In *P. taiwannensis*, the shield pentagonal, with projection at lateral and posterolateral areas, shield design with median line, admedian lines complete, submedian line absent; ridges with spiny microtubercles, coxal area smooth; fore coxal prosternal apodeme absent, empodium divided, 6-rayed (Huang, 2001b).

***Parategonotus acanthopanacinus* sp. nov.** (Figs 23–28)

Description. Female ($n=14$). Body fusiform, whitish, slightly dorsoventrally flattened, 184 (173–194), 60 (59–66) wide, 35 (33–38) thick.

Gnathosoma. Curved obliquely downward, 23 (22–25); dorsal pedipalp genual setae (*d*) 7 (7–8), pedipalp coxal setae (*ep*) 3 (2–3), cheliceral stylets 15 (15–19).

Prodorsal shield. 50 (49–53), 63 (54–70) wide, frontal lobe emarginated, antapical with transparent cone-shaped, frontal lobe 12 (10–13), shield design with median line absent, submedian lines discontinuous, admedian lines forming three sub rhombus pattern. Scapular tubercles ahead of rear margin, 26 (23–26) apart, scapular setae (*sc*) 8 (5–9), directed upward.

Coxae. Prosternal apodeme present, coxal area smooth; anterolateral setae on coxisternum I (*lb*) absent; proximal setae on coxisternum I (*la*) 7 (6–8), 6 (6–7) apart; proximal setae on coxisternum II (*2a*) 22 (18–25), 20 (18–21) apart. Coxi-genital annuli 5.

Legs. Segments normal. Leg I 28 (24–30), femur 11 (9–12), basiventral femoral setae (*bv*) 6 (5–6); genu 3 (2–3), antaxial genual setae (*l'*) 19 (19–26); tibia 7 (7–8), paraxial tibial setae (*l'*) located 1/3 at base, 2 (2–3); tarsus 5 (4–5), paraxial fastigial tarsal setae (*ft'*) 13 (10–16), antaxial fastigial tarsal setae (*ft''*) 15 (14–18), paraxial unguinal tarsal setae (*u'*) 3 (3–4); tarsal empodium 4 (4–5), 4-rayed, tarsal solenidion 5 (5–6), knobbed. Leg II 24 (23–28), femur 10 (10–12), basiventral femoral setae (*bv*) 5 (5–6); genu 3 (2–3), antaxial genual setae (*l''*) absent; tibia 5 (5–6); tarsus 4 (4–5), paraxial fastigial tarsal setae (*ft'*) 3 (3–5), antaxial fastigial tarsal setae (*ft''*) 14 (13–18), paraxial unguinal tarsal setae (*u'*) 3 (2–3); tarsal empodium 4 (4–5), 4-rayed, tarsal solenidion 5 (5–6), knobbed.

Opisthosoma. Dorsum with a median ridge and two lateral ridges, dorsal annuli 27 (27–28), lateral parts with round microtubercles; ventral annuli 51 (50–52), smooth; setae *c2* 12 (10–13), on ventral annulus 8th; setae *d* 15 (14–17), 25 (24–25) apart, on ventral annulus 23th; setae *e* 6 (5–7), 10 (10–12) apart, on ventral annulus 38th; setae *f* 17 (15–19), 16 (16–17) apart, on 4th ventral annulus from rear; setae *h1* minute, 1–2, setae *h2* 32 (23–43).

Female genitalia. 15 (13–16), 18 (17–21) wide, coverflap with 10–12 longitudinal ridges and with three row short cross lines at base, setae *3a* 10 (9–10), 13 (13–14) apart.

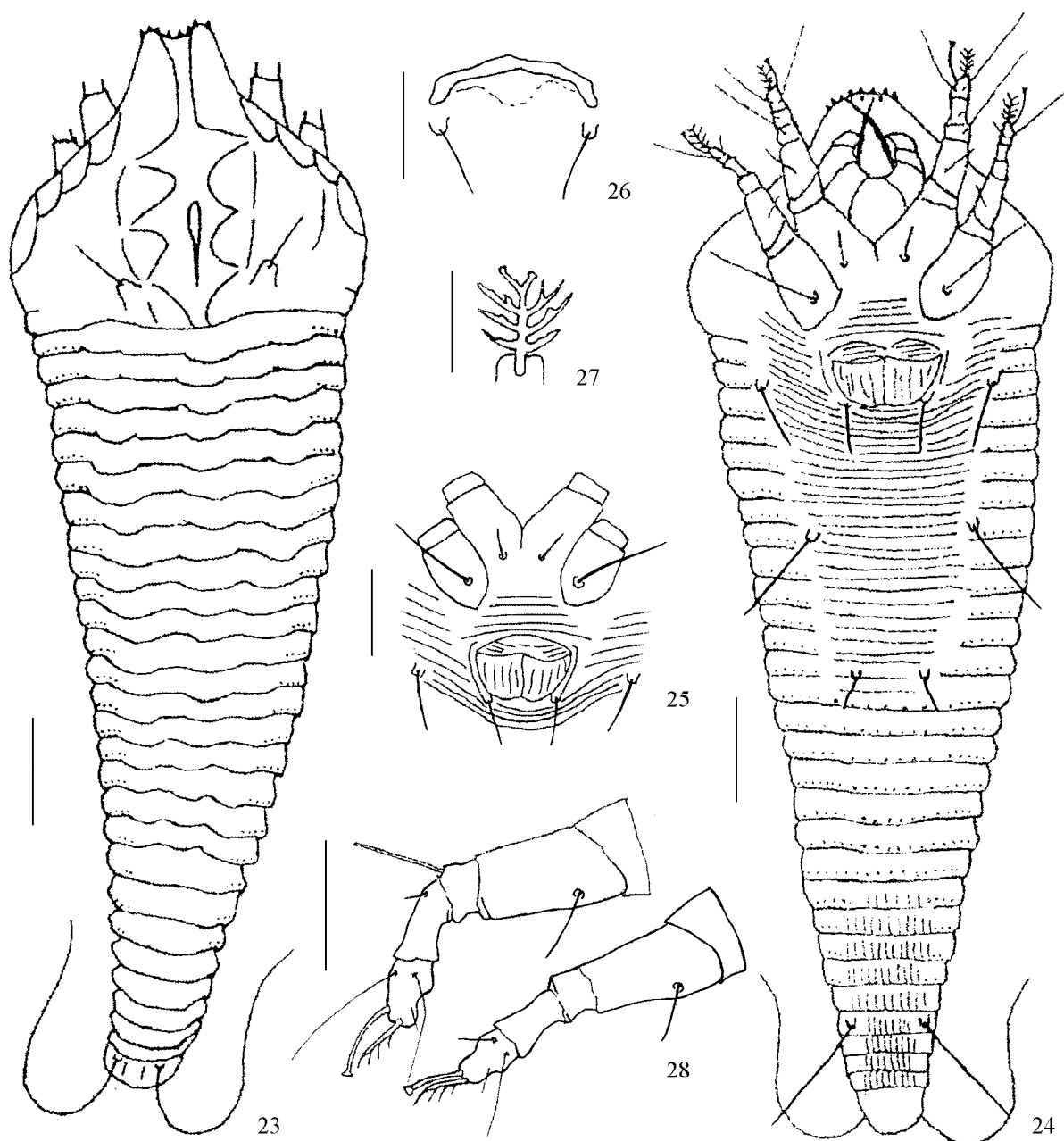
Male ($n=6$). Body fusiform, 173 (148–183), 52 (52–55) wide, male genitalia 15 (15–16) wide, setae (*3a*) 7 (7–8), 12 (12–13) apart.

Material examined. Holotype female, Shengtangshan National Nature Reserve (23°54'N, 110°6'E), Jinxiu County, Guangxi Zhuang Autonomous Region, China, 21 July 2011, from *Acanthopanax gracilistylus* W. W. Smith (Araliaceae), coll. Shan-Sheng Ou and Sui-Gai Wei. Paratypes 7 females and 6 males, mounted on individual slide, same data as holotype.

Biology. The mites are free-living on the undersurface of leaves, no conspicuous damage was observed.

Etymology. The species is named after the generic name of the type host plant.

Remarks. This new species is similar to *P. phragmitae* Kuang, 1991, but can be diagnosed by: admedian lines forming three sub rhombus patterns from frontal lobe to rear margin, opisthosoma dorsal annuli at lateral parts with rounded microtubercles, female coverflap with three rows short cross lines at base, and with 10–12 longitudinal ridges, accessory setae *h1* present. In *P. phragmitae*, the admedian lines forming a rhombus in distal of shield, then converge forming a small rhombus, opisthosoma annuli smooth dorsoventrally, female coverflap rhombus-shaped, accessory setae *h1* absent (Kuang, 1991).



Figs 23–28. *Parategonotus acanthopanacinus* sp. nov. 23. Dorsal aspect of female. 24. Ventral aspect of female. 25. Coxal-genital area of female. 26. Male genitalia. 27. Empodium. 28. Legs I–II. Scale bars: 23–25=20 μ m; 26, 28=10 μ m; 27=5 μ m.

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